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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/054,374

01/22/2002

Gerard J. Sullivan

Honeywell No.  
A11-26110US

5884

7590

06/18/2003

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EXAMINER

ZARNEKE, DAVID A

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/054,374

Applicant(s)

SULLIVAN ET AL.

Examiner

David A. Zarneke

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 20-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Group I, claims 1-19 and 29, is acknowledged.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 10-12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Johnson, US Patent 4,214,292.

Johnson teaches a system for stacking platelets, comprising in combination:

a slotted (40 & 42) file (created by 44, 46 & 48); and

a plurality of platelets (38) which fit into the slotted file (Figures).

Regarding claim 2, Johnson teaches the slotted file as having 3 walls (44, 46 & 48).

With respect to claim 4, Johnson teaches using 2 sidewalls (44 and 46) and 1 back wall (48).

As to claim 10, Johnson teaches the sidewalls and back wall as forming "U" shape (Figures).

Regarding claim 11, Johnson teaches the grooves on the sidewalls as facing directly across from each other (figures).

With respect to claim 12, Johnson teaches the platelets as comprising a chip and a chip carrier 3, 42+).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson, US Patent 4,214,292, as applied to claim 1 above, and further in view of Vafai, US Patent 6,457,515.

Johnson, which teaches the walls as being a heat sink (3, 54+) without listing any suitable materials, fails to teach the walls (44, 46 & 48) as being made of silicon.

Vafai teaches the use of silicon as a heat sink material (2, 51+).

The substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution. Ex parte Novak 16 USPQ 2d 2041 (BPAI 1989); In re Mostovych 144 USPQ 38 (CCPA 1964); In re Leshin 125 USPQ 416 (CCPA 1960); Graver Tank & Manufacturing Co. V. Linde Air Products Co. 85 USPQ 328 (USSC 1950).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the Si of Vafai as the heat sink wall material of Johnson because Vafai teaches that Si is a suitable heat sink material.

Claims 5-9, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson, US Patent 4,214,292, as applied to claim 1 above.

Regarding claim 5, while Johnson teaches the sidewalls (44 & 46) as having a plurality of grooves (40 & 42), Johnson fails to teach the grooves as being etched.

It would have been obvious to one of ordinary skill in the art at the time of the invention to etch the grooves of Johnson because etching is a suitable and commonly used method of forming openings/grooves in materials.

The use of conventional materials or methods to perform there known functions in a conventional process is obvious. In re Raner 134 USPQ 343 (CCPA 1962).

With respect to claims 6-9, it would have been obvious to one ordinary skill in the art at the time of the invention to optimize the depth and spacing of the grooves to meet standard requirements (MPEP 2144.05(b)).

Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson, US Patent 4,214,292, as applied to claim 1 above, and further in view of King et al., US Patent 5,140,405.

Regarding claim 13, Johnson fails to teach the chip carrier as having a floor and a frame.

King teaches a semiconductor assembly comprising a chip carrier having a floor (40) and a frame (42) (Figure 6).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the chip carrier of King as the chip carrier of Johnson because King teaches a redesign of a chip carrier with external edge conductors that permit the module to be plugged into a motherboard or other applications (1, 31).

The substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution. Ex parte Novak 16 USPQ 2d 2041 (BPAI 1989); In re Mostovych 144 USPQ 38 (CCPA 1964); In re Leshin 125 USPQ 416 (CCPA 1960); Graver Tank & Manufacturing Co. V. Linde Air Products Co. 85 USPQ 328 (USSC 1950).

With respect to claim 14, King fails to teach the floor and frame as being made of ceramic.

Ceramic is a conventional, well known in the art material used to form chip carriers. The use of conventional materials to perform there known functions in a conventional process is obvious. In re Raner 134 USPQ 343 (CCPA 1962).

As to claim 15, King teaches the floor as extending past the edges of the frame to form flanges (Figures).

Regarding claim 16, King teaches the flanges as fitting into the grooves of a motherboard or other application (1, 31+).

With respect to claim 17, King teaches a plurality of electrodes (41) on the edge of the floor (figure 6).

As to claim 18, King teaches the semiconductor chip (47) is placed face down on the floor contacting the plurality of electrodes (Figure 6).

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson, US Patent 4,214,292, as applied to claim 1 above, and further in view of Applicant's admitted prior art.

Johnson fails to teach the use of epoxy to seal the cube.

Applicant's admitted prior art teaches that epoxy is known to be used to seal a stack of platelets.

While applicant's admitted prior art is used to seal a stack, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the epoxy to seal a cube of platelets because epoxy is a commonly used sealant and by using the sealant one keeps the platelets firmly in place.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson, US Patent 4,214,292, in view of Vafai, US Patent 6,457,515, and Applicant's admitted prior art.

Johnson teaches a system for stacking platelets (38), comprising in combination:  
a slotted (40 & 42) file consisting of two sidewalls (44, 46) and a back wall (48),  
wherein the at least one back wall is connected to an end of each of the at least two side walls to form a "U" shape, and wherein a plurality of grooves on the at least two side walls face directly across from each other; and

a plurality of platelets, wherein each of the plurality of platelets is comprised of a semiconductor chip placed into a chip carrier.

Johnson, which teaches the walls as being a heat sink (3, 54+) without listing any suitable materials, fails to teach the walls (44, 46 & 48) as being made of silicon.

Vafai teaches the use of silicon as a heat sink material (2, 51+).

The substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution. Ex parte Novak 16 USPQ 2d 2041 (BPAI 1989); In re Mostovych 144 USPQ 38 (CCPA 1964); In re Leshin 125 USPQ 416 (CCPA 1960); Graver Tank & Manufacturing Co. V. Linde Air Products Co. 85 USPQ 328 (USSC 1950).

While Johnson teaches the sidewalls (44 & 46) as having a plurality of grooves (40 & 42), Johnson fails to teach the grooves as being etched.

It would have been obvious to one of ordinary skill in the art at the time of the invention to etch the grooves of Johnson because etching is a suitable and commonly used method of forming openings/grooves in materials.

The use of conventional materials or methods to perform there known functions in a conventional process is obvious. In re Raner 134 USPQ 343 (CCPA 1962). Johnson fails to teach the chip carrier as having a floor and a frame.

King teaches a semiconductor assembly comprising a chip carrier having a floor (40) and a frame (42) (Figure 6).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the chip carrier of King as the chip carrier of Johnson because King teaches a redesign of a chip carrier with external edge conductors that permit the module to be plugged into a motherboard or other applications (1, 31).

The substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution. Ex parte Novak 16

USPQ 2d 2041 (BPAI 1989); In re Mostovych 144 USPQ 38 (CCPA 1964); In re Leshin 125 USPQ 416 (CCPA 1960); Graver Tank & Manufacturing Co. V. Linde Air Products Co. 85 USPQ 328 (USSC 1950).

With respect to claim 14, King fails to teach the floor and frame as being made of ceramic.

Ceramic is a conventional, well known in the art material used to form chip carriers. The use of conventional materials to perform there known functions in a conventional process is obvious. In re Raner 134 USPQ 343 (CCPA 1962).

As to claim 15, King teaches the floor as extending past the edges of the frame to form flanges (Figures).

Regarding claim 16, King teaches the flanges as fitting into the grooves of a motherboard or other application (1, 31+).

Johnson fails to teach the use of epoxy to seal the cube.

Applicant's admitted prior art teaches that epoxy is known to be used to seal a stack of platelets.

While applicant's admitted prior art is used to seal a stack, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the epoxy to seal a cube of platelets because epoxy is a commonly used sealant and by using the sealant one keeps the platelets firmly in place.

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Malhi et al., US Patent 4,922,378, Budman et al., US Patent 5,276,590, Wenz, US Patent 3,631,325, and Farrand, US Patent 3,614,541 are all cited as teaching related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (703)-305-3926. The examiner can normally be reached on M-F 10AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703)-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-308-7722 for regular communications and (703)-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

David A. Zarneke  
June 15, 2003

